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## GEORGIA-PACIFIC WEST N.P.D.E.S. Permit Renewal Response to Comments

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### National Pollutant Discharge Elimination System (NPDES) Permits

Under the federal Clean Water Act, all facilities that discharge pollutants into waters of the United States must obtain an NPDES permit. The permit sets limits on both the types and amounts of allowable discharges, with the goal of (1) protecting public health and aquatic life, by (2) assuring that each facility follows technology-based effluent limits and appropriately treats wastewater.

The Environmental Protection Agency developed the NPDES permit mechanism for controlling pollutants as a means of achieving the goals of its Clean Water Act. The Department of Ecology administers the federal NPDES permit program under authority delegated from the EPA, and as directed by the Washington State legislature in **Chapter 90.48 RCW**. Ecology applies the more stringent effluent limit—either the technology-based standard, or Ecology’s water quality criteria—to regulated facilities, with the goal of assuring that current and future generations can enjoy the beneficial use of our state’s waters.

### Introduction to this document

This document summarizes major comments about the draft wastewater discharge permit. Comments, issues or concerns unrelated to waste management are not addressed in this document.

- Section “A” of this document (beginning on page 4) includes written and oral comments about the scope and design of the NPDES permit. It identifies all provisions of the draft permit that were changed as a result of citizen input, and the reasons for those changes.
- Section “B” (starting on page 20) includes comments about the NPDES program and wastewater discharge permitting process.
- Section “C” (page 27) includes comments about broader pollution control issues, some that influence NPDES permit terms and requirements.

### Process used to consult with the public

- Department of Ecology staff met periodically with environmental interest group leaders, and with Georgia-Pacific’s officials, during the course of drafting the proposed permit.
- May 12, 2000 we published in the Bellingham Herald, notices of availability of the draft wastewater discharge permit for public examination at Ecology’s Bellingham and Lacey offices, and at the Bellingham public library. Staff also mailed notices to a list of interested addressees.
- We scheduled a public meeting in Bellingham for June 28, 2000, to describe changes in the contents of the draft permit and to receive oral comments about them.
- The time period for submitting formal comments about the draft permit extended from May 12, through August 18, 2000.

### Public comments made a difference in Georgia-Pacific’s NPDES Permit

We know, from the sheer volume of comments, that the Georgia-Pacific West mill plays a pivotal role in the economic character of the Bellingham area. Although a number of spoken comments about Georgia-Pacific pertained to issues outside of Ecology’s regulatory authority, all of the comments helped us approach the wastewater discharge permit renewal with individual ideas or preferences in mind. In some instances, individual comments led us to make specific changes to the draft permit. (At least half a dozen of our responses include citations to a page and section in the final permit, incorporating those changes.) The outcome of public comment is a better, more environmentally protective permit.

**The most prominent comment** related to Georgia-Pacific West's anticipated change in the mill's chemical bleaching process, following closure of its chlor-alkali plant. Georgia-Pacific West is converting to use of an Elemental Chlorine Free bleaching technology (ECF). Although pulp production processes and bleaching technologies are outside of the NPDES program's sphere of control, they necessarily influence effluent limits and performance requirements within the permit. Representative summaries of specific comments about pulp processing technology, followed by Ecology's responses, appear immediately below.

***Ecology's Responsibility--***

[2] During the formal comment period, we received 68 comments similar to this:

*Ecology should force the mill to use Totally Chlorine Free bleaching, and not allow the mill any "special regulatory exemption".*

■ Ecology administers the federal National Pollution Discharge Elimination System (NPDES) permit program under authority delegated from the Environmental Protection Agency, and as directed by the Washington State legislature. This combination of federal and state authority allows the department to impose limitations on wastewater dischargers that are at least as stringent as those developed or already approved by the EPA.

In its effluent guidelines for regulating many categories of industries, the EPA established a standard that the EPA calls "best available technology that is economically achievable" (BAT). To develop the BAT standard for each industry, assigning specific limitations to similar categories of wastewater dischargers, the EPA conducts a rigorous technological and economic analysis—a more arduous and time-consuming task than Ecology has the resources to perform. During the development of the new pulp mill regulations (often called the Cluster Rule, adopted in 1998) the EPA evaluated several different types of pulping processes and set limits for each type. Georgia Pacific falls into one of these categories (called Specialty Grade pulp) and is not receiving any special regulatory exemption. See the attached letter, from the EPA to Ecology, dated March 22, 2000 (Appendix 1); and our response to comment [52] on page 9, below.

Washington state law (Chapter 90.48 RCW) compels Ecology to require that industries discharging waste into waters of our state use "all known, available, and reasonable methods of treatment" (AKART) to prevent and control pollution. AKART is a statement of legislative intent directed toward the goal of maintaining clean water by limiting pollutants from wastewater discharges. AKART is a technology-based approach in which we apply both an engineering and economic judgment to set any facility's discharge limitations.

Determining AKART for any multi-national company (such as Georgia-Pacific) is more research oriented and resource-intensive a role, however, than Ecology had accepted with the federal delegation. Ecology decided to implement those federal effluent guidelines issued by the EPA, rather than develop an individualized AKART for each regulated facility, when necessary to fulfill our NPDES responsibilities. In so deciding, Ecology thereby also agreed that the EPA's definition of BAT meets Ecology's definition of AKART, provided that the process units upon which the BAT is based have not changed.

***Totally Chlorine Free--***

The wastewater discharge limitations in the NPDES permit for Georgia-Pacific West are derived from the EPA's 1998 effluent guidelines for the Specialty Sulfite Pulp segment of the paper grade sulfite category. We did, however, insert a TCF Feasibility Study requirement. (See: Permit page 10, at subsection B.6.)

Operating within these effluent limits will necessitate a bleaching process change that includes switching from its previous elemental chlorine pulp bleaching process (using hypochlorite, i.e., swimming pool chlorine) to a primarily chlorine dioxide pulp bleaching process. Georgia-Pacific West has also decided to include an oxygen delignification step in the bleaching process, prior to the chlorine dioxide stage, which will further reduce the mill's potential for generating dioxin—a hazard associated with chlorine bleaching processes. These two process changes incorporated into the new wastewater discharge permit limits will measurably improve the mill's environmental performance during the five-year permit cycle.

[60] *Apparently, the EPA has a "...long-term goal of eliminating the use of chlorine and chlorine compounds..." in pulp and paper mills operating within Region X, which includes the state of Washington. This goal should be expressed in Georgia-Pacific's NPDES permit and the performance dates of individual control strategies should be calculated for conformance with that goal, at a date certain.*

■ The NPDES permitting program itself is the strongest statement of the EPA's long-term goal. We have sought and closely followed the EPA's specific guidance on Georgia-Pacific's permit. The draft of this permit was reviewed by Region X staff; their comments omitted mention of any such requirement.

#### ***Elemental Chlorine Free--***

[35] *Please identify the chemicals used as the basis for ECF bleaching.*

■ This facility will use chlorine dioxide bleaching technology, instead of elemental chlorine. This change is estimated to reduce current AOX (adsorbable organic halides—compounds that can be precursors to the formation of dioxin) discharge amounts by at least 70% and possibly as much as 80 %.

[81] *I support Georgia-Pacific West's bid to get approval for the "Elemental Chlorine Free" bleaching process at it's Bellingham pulp and paper mill. The ECF bleaching process will allow them to maintain the product quality demanded by their pulp customers and at the same time meet the EPA's Cluster Rule "Specialty Grade Category" standard for the industry.*

■ Comment noted.

[85] *NWPPA supports Georgia Pacific's environmentally sound decision to use elemental chlorine free technology for its bleaching operations. We believe that Elemental Chlorine Free bleaching technology is the right solution. First of all, ECF technology has scientifically proven environmental benefits. Second, ECF technology is more ecologically responsible than TCF technology because it uses less wood to produce pulp. (Using less wood chips means using fewer trees to produce the same amount of paper.) Third, ECF is the primary bleaching technology used throughout the entire world, not just the United States and the Pacific Northwest. And fourth, ECF bleaching technology preference is expanding because of documented scientific data on its environmental advantages and superior pulp quality.*

■ Commented noted. Ecology has used EPA guidance in preparing this permit.

## Section A: Permit Scope and Design

Each NPDES permit establishes the facility's pollutant outflow (effluent) limits, identifies which standard or criteria Ecology used to arrive at those limits, and also sets monitoring, testing, and reporting requirements.

### A.1. Site-specific discharge limits

[1] The Environmental Protection Agency (EPA) had one formal objection to the permit as drafted. We paraphrased that objection, for clarity. The EPA's letter is attached as an Appendix to this document.

*Permit section S1. B2. Bleach Plant Effluent limitations must be in effect at the time of permit issuance. Future compliance dates for federal effluent guidelines cannot be sanctioned in NPDES permits. A companion Order should be used to achieve compliance as soon as possible.*

☐ The proposed permit has been modified—we removed the future compliance date. New bleach plant effluent limitations will be effective on the date we issue the permit. (See: Permit page 7, at subsection B.2.)

*[28] Given the large volume of Georgia-Pacific's discharge, don't assume that low pH will be adequately buffered. The water quality standard for this parameter is more stringent than the technology based standard used here, and therefore the water quality standard should apply. Giving the mill an overly generous limit for pH, and then allowing exceedences for an hour in duration before action is taken, seems to ensure that the mill cannot violate this permit parameter.*

☐ We are holding the mill to the water quality standard. The Ecology pH limitation is derived from EPA rules, but is more stringent and it is protective of water quality. The federal rule has a standard variance for pH at industrial facilities with continuous pH measuring devices. This variance allows an uncontrolled pH discharge beyond the permitted range for 1 hour, at any pH level, and allows total pH excursions of as much as 7 hours and 26 minutes per month (40 CFR 401.17(a)(1) & (2)). This permit gives an allowance for final effluent values to occur, but only to within one pH unit of that limit. Within this "one unit range" the EPA variance applies—that is, a single excursion of one pH unit or less, for a duration of up to one hour, is not a violation, and also, the total of pH excursions in a month—up to a maximum of 7 hours and 26 minutes, are not considered violations. All excursions beyond these limitations are considered violations.

*[29] This NPDES permit should include an effluent limitation for mercury, until the Model Toxics Control Act cleanup of Bellingham Bay is complete. How can one determine whether there is a potential to exceed water quality standards during cleanup activities? The MTCA limit of 0.03 lbs. per day should be in this NPDES permit, along with daily monitoring to accurately gauge mercury flows. Triggers set for the source evaluation are too high; set the source monitoring program to trigger the next requirement when two successive samples are 0.6 ug/L or higher.*

☐ The permit does include a mercury limit, but it is set at the Mercury Recovery Unit (MRU) rather than at the final outfall. The limit at the MRU is 0.03 pounds per day. Extensive data shows no reasonable potential to exceed the water quality standards at the final outfall. The MTCA cleanup-related discharge is continuously monitored for mercury at the MRU. Georgia-

Pacific's final outfall is also monitored to ensure water quality protection. The trigger was set at a statistically valid level. All data will be reported. Ecology believes this trigger system will be protective. We also continue to collect data for sediment quality evaluations.

[56] *The permit itself should explicitly limit the allowable effluent concentration of mercury, as methylated and as total mercury. Since the chlor-alkali unit has been demolished, no more mercury discharges should be allowed. The permit should require not only mercury monitoring, but also have a mercury limit. What is the background level of mercury in the receiving waters? What are other sources of mercury in the vicinity?*

■ Ecology uses a conservative model to calculate whether a given contaminant is likely to cause a problem. In this case, mercury does not show a reasonable potential to affect water quality. With closure of the mercury cell chlorine plant, discharge of mercury should be eliminated. We have insufficient ambient mercury data available to establish a valid background concentration. When this situation occurs, Ecology assumes that background is zero. This assumption is supported by the few samples available. There may be other sources of mercury to the bay, but the data we have is not sufficient to quantify them. See: Permit, page 8 at B.3, and page 10 at D.

[30] *Was a monitoring program for AOX, dioxin and furans required in the 1991 permit? Ecology should use that data to set a limit to be in force from permit issuance until the new bleach plant is operational. Once the new sequence is in use, immediately determine the identity and the concentration of AOX components in the final effluent, under average to near-maximum production levels. Conduct acute and chronic tests using the AOX fraction, then reopen the permit at the completion of these studies—no later than one year—to set water quality or technology based limits on AOX.*

■ The 1991 permit did require adsorbable organic halides (AOX), dioxin and furan monitoring. The comment asks Ecology to set performance based limits for these compounds. Ecology only uses this approach in the absence of applicable federal regulations (BAT). The proposed permit contains dioxin limits based on water quality standards. We cannot establish a water quality based limit for AOX, since Ecology has only a generic test for halogenated hydrocarbons, and no water quality standard available. AOX will be monitored weekly throughout the duration of the permit. Acute and chronic toxicity tests are required by state regulation and are written into the permit in detail. It is not practicable to isolate the AOX fraction of the effluent, so we test the whole effluent instead. If the whole effluent toxicity characterization shows toxicity, then Georgia-Pacific will be required by the permit to initiate a toxicity identification/reduction evaluation in accordance with 173-205-100 WAC. The evaluation procedure does not specify an AOX fraction, but it does include several organic fractions that would include these compounds.

[31] *How can TCDD be expressed in mg/day and yet have only quarterly and annual permit limits? If sampling only occurs quarterly, then daily values would never change; they would be the same for each day in the quarter. What is the basis for the assumption of background concentrations of TCDD in Bellingham Bay at 50% of the water quality standard? The practice of substituting zero or very low values for values below the method detection limit artificially lowers the actual concentration present; be conservative and use the detection limit in cases where the concentration cannot be ascertained. In fact, a back calculation, using the past GP data of 10 ppq at the edge of the dilution zone, estimates the dioxin concentration at 1.5 mg/day—more than ten times the water quality standard that Ecology now recommends.*

■ The quarterly maximum is the highest value allowed on each quarterly sample, annual average is the highest level allowed when 4 quarterly samples are averaged together. This, in effect, drives the limit even lower overall, but allows some fluctuation between samples.

The basis of the TCDD limit for this permit assumes that the concentration in the final effluent will not exceed 50% of the water quality standard. For calculation purposes, Ecology assumed that the background concentration for TCDD in Bellingham Bay was “0” because we do not have ambient TCDD data in the bay (see comment # 56 on page 4). When evaluating actual concentrations present, there are three ways to use “less than detection” values in calculations; they are to use: the detection limit, half the detection limit, or “0”. It is agency policy to use “0” when the sample is below the method detection limit.

The commenter is correct that using the detection limit results in a value about 10 times greater than the limit. This situation occurs any time the limits are below the detection level. When evaluating compliance, a hit at the method detection limit is a violation and a non-detect is not a violation.

[32] *Why is there no limit for chloroform?*

■ The EPA has not yet developed a limit, and Ecology lacks sufficient information to independently develop chloroform limitations at this time. Chloroform monitoring requirements at the bleach plant were included in the permit. On page 8, the permit states that two years after start up of the OD/ ECF (oxygen delignification/elemental chlorine free) bleach plant, we will evaluate the chloroform data and decide whether it is feasible for Ecology to set chloroform limits. If so, we would reopen this permit and include chloroform limits applicable at the bleach plant. Should the EPA set chloroform limitations guidelines during the term of the permit (prior to the last 6 months of the permit term), we will reopen the permit to insert those limits.

[33] *Don't overlook the importance of setting Chemical Oxygen Demand limits. Tests should be run twice each week for six months. A report on COD and Biological Oxygen Demand data should be prepared and made available to Ecology and to the public within one-year following implementation of Georgia-Pacific's new bleaching technology (ECF or TCF). Ecology should then reopen the permit to add COD limits.*

■ The EPA also elected to wait on promulgation of limitations for COD. Ecology has followed the federal guidelines in this respect, although we have inserted requirements to monitor COD. Again, the permit requires monitoring for COD (see: Permit page 6, at subsection B.1.) If the data indicate that it is possible to establish a limit, or if the EPA establishes a limit, we will reopen the permit to include COD limits.

[48] *The best professional judgment should compel Ecology to require that Georgia Pacific decrease its solids discharge limit. The Georgia-Pacific permit should mandate additional solids alleviation.*

■ Ecology is following the latest EPA guidance for effluent limitations, published in 1998, as well as specific guidance contained in a letter from the EPA. (See the EPA letter in Appendix 1.)

[20] [62] *If you at least limit Georgia-Pacific's solids and BOD effluent to the amounts and concentrations they are already discharging, we'd see a great reduction in that permit limit. You should go further by requiring secondary settling; estimate both the change in loading to the Bay, and the cost of constructing secondary clarifiers.*

■ The facility is currently meeting the Best Available control Technology economically achievable (BAT) standard required by the 1998 federal effluent guidelines (see comment #48, above). Ecology is following federal guidelines, in that we regard BAT as meeting our AKART standard. This permit does require Georgia-Pacific to conduct a treatment system study; Ecology will use it to evaluate whether secondary settling clarifiers would significantly lower Total Suspended Solids discharges for a reasonable cost.

[62] *Require Georgia-Pacific to actually decrease its discharges; the seeming reductions in Total Suspended Solids and Biological Oxygen Demand are actually due to pulp production decreases. [95] Set permit limits at, or near, actual performance measures.*

■ Ecology imposes performance based limits exclusively on large industries for which the EPA lacks guidelines. When the EPA develops effluent guidelines, performance data collected from across the industry sector is factored into limitation setting in the federal rules.

[41] *Consider a site-specific limit for solids and BOD at the Lignin and Alcohol process phases.*

■ Allocation of Total Suspended Solids (TSS) and Biological Oxygen Demand (BOD) levels developed by Federal guidelines take into account the usage, disposal, or recycling of spent digester liquors. The limit is for the entire plant; it's up to the operators to achieve the treatment standards in the guidelines by whatever distribution among processes it chooses.

[49] *No dioxin effluent concentration limit is apparent in the permit. The Fact Sheet does contain calculations showing that a hypothetical limit of .98 parts per quadrillion dioxin would achieve compliance, but that limit does not explicitly appear in Section S1, Effluent Limitations, of the actual permit. This effluent limit of less than .98 ppq dioxin must be a plain permit condition. To assure compliance at the edge of the mixing zone, assuming 140-1 dilution, and assuming no dioxin is already present in the receiving waters, I suggest that the Georgia-Pacific permit contain a limit based on the water quality standard of .014 ppq. **If**, however, a mixing zone for dioxin is declared lawful, then the limit at the pipe should be below 1 ppq.*

■ Although the EPA is contemplating phasing out mixing zones for the Great Lakes, at this time dilution zones are allowed elsewhere. The limit for TCDD dioxin is expressed on a mass basis. Mass based limits are more restrictive in that they account for large and changing volumes of effluent involved. For reference purposes, using average flow, a conversion back to a concentration based limit results in an amount less than 1 part per quadrillion; (0.98ppq) would be in violation of the mass loading limit. Since we are working at concentrations below the detection limit, a concentration limit would have as much validity as the mass limit. The mass limit is important with industries with large flows and potentially high variability.

[51p] *The permit's AOX limit is in "concentration" and does not limit the tonnage of AOX discharged. The permit should contain a limit on mass loading AOX, and a schedule of AOX reductions.*

■ Ecology is following the EPA’s guidance for effluent limitations, which is expressed as “concentration.” In this case, an AOX limit is only required if the mill fails to maintain its status as a specialty grade mill, i.e. the production of specialty grade pulp falls below 25% of total pulp production. Ecology is considering how to best achieve further reductions in AOX. No schedule is included in the permit due to lack of specific data on how and where AOX compounds are formed in the mill.

[19] [58] [77] *Require Georgia-Pacific to completely cease discharging hexavalent chromium.*

■ Comments noted. Ecology analyzed the “reasonable potential” that hexavalent chromium might cause receiving water toxicity and determined the discharge has no detrimental affect on water quality. The permit requires increased monitoring for this, and other, priority pollutants.

#### A.2. Standard and site-specific monitoring, testing, and reporting

##### ***Self-monitoring--***

[4] [9] [16] [76] During the formal comment period, we received five comments similar to this: *Ecology should not trust Georgia-Pacific to self-monitor. If possible, the permit should include a requirement that Georgia-Pacific pay for an employee of the Department of Ecology (rather than a Georgia-Pacific employee) to monitor the mill’s releases of regulated substances. If that is not possible, then I hereby request that you require blind and blanks be tested on all NPDES permitted pollutants reported to Ecology or the EPA Region X section. The QA/QC methods should be very similar to—if not the same as—those required of municipal and agricultural wastewater treatment facilities.*

■ Self-monitoring has been established by the Department as the most efficient way to obtain necessary data from each of the facilities we regulate. Facilities with laboratories are inspected and certified through Ecology’s Lab Accreditation Program. The laboratory accreditation program applies to contracted and facility-operated laboratories, alike.

Additionally, Ecology staff conduct scheduled and unannounced inspections at each regulated facility several times a year; staff also collect and analyze samples of effluent from several process points within the facility. Our inspections and sample analyses validate the accuracy of monitoring data reported by Georgia-Pacific West, and verify the operators’ compliance with permit requirements. We also require Georgia-Pacific to follow a QA/QC plan that includes blanks.

[5] *If Georgia-Pacific West is monitoring effluent and sludge, what are the results? Has Georgia-Pacific failed to meet any performance requirements or permit limits during the past 10 years? Do you intend to issue a permit for them to try again?*

■ Georgia-Pacific is in compliance with the existing permit, including reporting the required discharge monitoring data results and compliance status, each month. Georgia-Pacific is currently making major structural changes within the mill that will enable the facility’s operators to comply with the more stringent limitations in the renewed NPDES permit.

With the exception of the—now defunct—chlor-alkali plant, Georgia-Pacific has had a reasonable compliance record: Since the current permit was issued in 1992, seven permit violations required administrative action or a penalty. Five of these violations were discharges from the chlor-alkali plant, which closed in 1998; one penalty was for a total suspended solids



violation at the final outfall, and one administrative order dealt with a discharge to the Whatcom waterway that resulted from a sewer line break at the Georgia-Pacific dock.

Each permit cycle provides an opportunity to incorporate pollution control technological advances into the development of NPDES permit requirements. As long as the mill can meet the requirements, Ecology will issue the necessary permit. Regulating Georgia-Pacific under this new permit is the best way we can continually reduce and control their discharges.

***Add or increase monitoring--***

During the formal comment period, several individuals asked that the permit add or increase required monitoring of the following various parameters:

Frequency [35] [46] *We are pleased to see limits for many chlorinated compounds, but wonder how one can monitor monthly and yet express daily values. Monitoring for these compounds must be recorded daily. TCDD monitoring should be done on a daily basis.*

■ Monitoring frequency is usually determined by variability in the sample data. The EPA did not expect significant variability because the limit for both TCDD and TCDF is less than 10 parts per quadrillion (less than the detection limit). A daily value refers to the sample value obtained for each day of sampling and it is compared to the daily limit. This value is not averaged over multiple days. Adequate data already exists to evaluate the potential water quality effects of the final effluent TCDD loading. Increased monitoring within this permit cannot be correlated with an increased water quality benefit.

[61] *I was surprised to see a limit expressing quarterly maximums and annual averages for TCDD (which is toxic and bioaccumulative); we need to see daily maximums and monthly averages like we do for solids and BOD. Chloroform is the same. We need daily maximums and monthly averages as we have in all the other conventional pollutants.*

■ Daily maximums and monthly averages for BOD and solids are useful, in part, for monitoring the operational effectiveness of the wastewater treatment system. We anticipate very little change in TCDD and chloroform production, because the process is relatively stable. Because we are not monitoring the effectiveness of a treatment system, we see no reason to require daily monitoring. Additional monitoring data will not increase protection of water quality.

[52] *The bleach plant flow should be monitored. In summary, the Georgia Pacific permit should require more frequent sampling of additional constituents, at more varied locations, including the bleach plant; lagoon subsurface, groundwater and sludge; and mill product.*

■ Bleach plant effluent and clarifier sludge will be monitored. One result of the treatment system study is the increased collection of wastewater data, from a variety of locations throughout the mill. Ecology cannot legally regulate mill product. Because Georgia-Pacific West is a specialty grade mill, however, Ecology will be tracking its production of alpha cellulose (specialty grade) pulp.

[51] *The permit should require monitoring of the combined bleach plant and outfall 001 effluent—daily for AOX, and weekly for 2378 TCDD. The Georgia Pacific permit does mandate monitoring upstream of the clarifier, but several studies show particular locations in bleach plants of differently configured mills will reveal particularly high levels of dioxin and AOX, and*

*those sites should be identified and described in the permit as the most useful and reliable monitoring points.*

■ This permit requires AOX monitoring at the final effluent and at the bleach plant. Ecology is considering how to best achieve further reductions in dioxin, including studies of dioxin formation within the plant. As data becomes available it may be necessary to incorporate new monitoring requirements into the permit.

[24] *AOX should not be exempt from monitoring on a monthly basis.*

■ There are no adsorbable organic halides (AOX) limits or monitoring requirements in the EPA's effluent guidelines. On advice from the EPA, we included an AOX limit in the permit that applies when the production of specialty grade pulp drops below the 25% minimum production threshold in the effluent guidelines. See S1, subsection B. The permit also includes weekly AOX monitoring during the full term of the permit. When the EPA develops AOX limits for specialty grade pulp production, Ecology will include them in Georgia-Pacific's permit.

#### ***Other Parameters--***

[34] *Ecology should require the regulated industries to collect color data or to pay for such a data collection effort.*

■ The EPA has elected to wait on promulgating limitations for discharge color. Should EPA promulgate effluent guidelines for color, Ecology will reopen the permit.

[63] *There should be something in the permit, somewhere, looking at marine mammals. We've had visits from them and we're being told that these exotic species just happen to be here by accident. Those whales were here for millions of years—long before we were—and they were hunted down to one breeding population surviving in the Arctic. Now that the population is growing and they're trying to move back, we definitely should be looking at what we are doing to the bottom of the bay in order to remediate that marine habitat and bring it back to life...*

■ Sediment monitoring is part of the permit. See subsection S1, at D. Biological evaluation of pelagic mammals is beyond the scope of the NPDES program.

[67] *Pursue reporting of dioxin and furan samples that are below minimum levels established in EPA method 1613 outside the DMR reports.*

The EPA method 1613 established the minimum level by the lowest calibration standard. There is no reason one cannot get good quantitative data below the minimum level. This information is valuable to the agency in assessing trends, in understanding sources and processes of dioxin/furan formation and in evaluating opportunities for further reduction of these compounds. Because the turn-around time for dioxin/furan analysis could be difficult to meet on a monthly basis, the permit will be changed to require that estimated sample results below minimum levels be submitted in quarterly reports rather than in the Discharge Monitoring Report.

Compounds

[24] [47] [61] *Please monitor all listed compounds under B2 - Bleach Plant Effluent. Total AOX, TCDD, TCDF, and chloroform should be monitored at least monthly in the bleach plant effluent, mill effluent, and sludge. Quarterly monitoring of effluent for TCDD, and semi-annual sampling of sludges is inadequate.*

■ The department has no monitoring information on the chlorinated phenolics, TCDD, TCDF, or chloroform concentrations. TCDD and TCDF will be controlled at the bleach plant, where there is a less than ten parts per quadrillion limit on each compound and a monthly monitoring requirement. If Georgia-Pacific is in compliance with the bleach plant limitation, then operations will be in compliance with the final effluent limit; violations of the discharge limitation, however, will cause us to require increased monitoring frequency.

During the course of this permit period, information collected as part of compliance monitoring—and measures of the percentage the AOX made up of these compounds—will then be available. Meanwhile, the EPA is evaluating a process certification program for use in place of chloroform monitoring.

Mercury [29] *Daily monitoring is necessary to accurately gauge mercury flows during the Bellingham Bay cleanup.*

■ The discharges from cleanup activities are continuously monitored for mercury. The final outfall is also monitored, to ensure protection of water quality and to continue collecting data for sediment quality evaluations.

[36] *To get an accurate read on how much mercury is flowing through the outfall pipe, we suggest that Georgia-Pacific be required to monitor at both the MRU and the final outfall; the point of compliance would be determined after six months.*

■ Monitoring is occurring at both locations and the point of compliance will be established in the chlor-alkali plant cleanup order. An analysis of the existing mercury data at the final effluent indicates no potential to exceed the water quality standards, therefore we lack a basis for imposing a limit there. The concentration of mercury at the final effluent has significantly decreased since the chlor-alkali plant was closed.

[53] *The permit should contain a condition stating that any monitoring results in excess of the permit limits constitutes proof of a violation.*

■ The permit contains this definition. See Condition G1, on page 27 of the permit.

[58] *There is no explanation accompanying the permit, describing why any metals use and discharge is necessary. [57] Because of the historic discharge of heavy metals and dioxin from this source, sediment monitoring should be required in addition to the proposed initial baseline tests of sediment toxics background. Those baseline tests should include all metals and toxics known to have been discharged from the mill, rather than simply mercury.*

■ Metals are not added to produce the pulp product. Trace amounts of copper sometimes enter the system through water supplies. Although chromium is used in the lignin plant, there is no evidence that it is getting into the wastewater. Previous sediment samples have identified those historical discharge effects. On-going monitoring of sediments, for the purpose of tracking applicable pollutant levels under Georgia-Pacific's processing change, is part of this permit.

Mixing zone [8] *Why aren't there any human health studies being conducted with regard to this permit? Humans don't live in the water, this we know. If no studies are done on human health, how do you know which standard applies?*

■ The water quality criteria used to establish limits are developed to protect humans as well as marine organisms. Human health based limits in NPDES permits are related to the effects of what is consumed from the receiving water. Since this is salt water, and not used for drinking water, the criteria would be related to seafood consumption. Human health study data is considered during the development of water quality criteria; see the Fact Sheet on page 16. Such studies as you request are beyond the scope of individual permits.

[17] *The 140:1 daily dilution zone DOE currently proposes is approximately 5,200,000,000 gallons which is equal to about 3.5 miles of Bellingham Bay to a depth of 50 feet. For DOE to grant a zone of this magnitude so that “G-P can meet state water quality standards” is wrong. The assumptions and judgment used in establishing this zone are wrong.*

■ Requirements for establishing a dilution zone are found in WAC 173-201A-100. Georgia-Pacific conducted a study to determine the dilution ratio based on these requirements. The dilution zone is (among other details) defined as a boundary, approximately 200 feet out from the outfall ports. It is not a volume calculation. At this 200 foot distance, the effluent is diluted to approximately 140:1 from its original concentration. For example a gallon of effluent leaving the outfall would be diluted to 1/140 its original concentration at this 200 foot boundary. As an analogy, this dilution is like adding one cup of effluent to 140 cups of tap water and mixing.

[18] *Georgia-Pacific’s permit application proposed a dilution zone about the same size (3.5 miles of Bellingham Bay to a depth of 50 feet) as the volume of water in which all potential oxygen is wiped out every day—based on the realization of over 300,000 pounds of chemical oxygen demand (based on 7ppm oxygen carrying capacity of Bellingham Bay waters).*

■ Ecology does not use Chemical Oxygen Demand when evaluating the effects of oxygen demand on the receiving water. Biological Oxygen Demand is the value we use, because the majority of the COD is not available to effect dissolved oxygen in the receiving water. Accurate Dissolved Oxygen levels can be measured in Bellingham Bay; Ecology routinely monitors the quality of the water. The monitoring effort includes the measurement of dissolved oxygen. Available DO data does not suggest the scenario described by the comment. Facilities are prohibited from degrading water quality; water quality criteria are described in Chapter 273-201A of the Washington Administrative Code.

[64] *The mixing zone is beyond the outfall pipe of the diffuser, and then there’s some imaginary circle outside of which they’ll measure water quality. Everything inside that imaginary circle is a recreation area for most of the people of this town, who go boating, swimming, fishing. I think the Clean Water Act talks about “swimmable” as a standard to be protected. I question whether the bay is swimmable beyond the mixing zone.*

■ Preserving “beneficial uses” is a requirement of both the state and federal clean water laws. Georgia-Pacific’s discharge does not degrade characteristic uses of the receiving water. Dilution zones are allowed by law. See pages 12, 13, and 14 of the Fact Sheet, for detailed information.

[50] *This permit assumes a 140-1 dilution of the effluent. But two separate studies of the Columbia River’s ability to attenuate the Boise Cascade mill’s discharge provide proof that the rates of dilution in a swift, large river, are frequently less than 100 to 1 at the edge of the mixing zone. It is therefore unlikely that G-P effluent will dilute 140-1 in a relatively placid Bay.*

■ The application of river dilution zone variability or inaccuracy to a tidal discharge is highly problematic, if not incongruous. The dilution allowance for the facility is a conservative one, arrived at through specific, consistent, and department-approved procedures.

[37] *Has any sampling been conducted at the edge of the mixing zone to ensure that the modeling is accurate? If not, then certainly sampling should be conducted--perhaps at intervals from the outfall to the edge of the mixing zone--to accurately assess the impacts of allowing mixing for this discharge. Ecology should require Georgia-Pacific to complete an updated Dilution Ratio study before or at permit issuance. Defining mixing zones for acute and chronic toxicity before gauging toxicity, is essentially allowing mortality of any and all organisms that are luckless enough to swim near the outfall, within the area delineated for mixing.*

■ In situ sampling efforts to verify dilution are highly problematic. A conservative dilution was determined through extensive computer modeling, using the most restrictive inputs (those inputs that produce the lowest dilution value). Ecology requires the facility to complete an updated dilution study, should effluent flows change significantly (greater than 10%). When the ECF conversion is complete, Ecology will determine whether an updated dilution study is required.

[44] *Georgia-Pacific should conduct a dilution ratio study within 60 days of completing the ECF bleach plant conversion.*

■ Dilution ratio studies usually commence when effluent flows change significantly—changes of more than 10% to total daily flow, on a consistent basis. The department will monitor the mill's flow and inform the facility of the appropriateness of dilution study initiation.

#### ***Toxicity Testing--***

[25] *Testing for chronic toxicity should be conducted every month. The monitoring should use grab samples taken directly from the final output pipe and at the mixing zone. During the previous permit term, WET tests found chronic toxicity to be at levels that (in accordance with WAC 173-205-050(2)(a)) have a reasonable potential to cause receiving water toxicity.*

■ The proposed permit requires quarterly chronic testing, which has been determined to be the most reasonable approach for this requirement. If a chronic Whole Effluent Toxicity limit is required as result of the WET characterization, Georgia-Pacific must conduct monthly testing for the subsequent three months; if one of these fails, then move into a Toxicity Identification/Reduction Evaluation (TI/RE). It is impracticable, if not impossible, to retrieve samples at the dilution boundary within the water column.

The commenter is correct with regard to the WET regulation. The effluent was determined to have a reasonable potential to cause chronic toxicity. Ecology would have included a limit in the permit in this draft, but the bleach plant modifications may change the toxicity characteristics of the effluent. We decided to require the mill to re-characterize the effluent after the modifications are complete, and include a chronic limit that will take effect if the re-characterization still indicates there is a potential to exceed the WET requirements.

[23] *Are toxics penetrating the clay lining of the lagoon? How are these tidal emissions, through the lagoon walls and floor, being monitored?*

■ Effluent passing through the lagoon is discharged to Bellingham Bay. No penetration of the lagoon is apparent, nor is it expected; but if it occurred, the penetration would result in minimal

discharge of treated effluent. Lagoon integrity will be investigated as part of the Treatment System Study requirement within the permit. The permit does not address monitoring through the lagoon.

[45] *What's the value of sampling prior to plan submittal (treatment system study)? Should the engineering report submittal date be 11/01/2003, or should the report's content be altered?*

■ The treatment system study engineering report due date has been changed to 11-01-2003. (See: Permit page 14, at subsection 6.)

[38] *A stormwater analysis should answer the following questions:*

- a) After large storm events, what is the concentration of metals, pesticides, and Total AOX, in the final effluent?*
- b) How do these concentrations compare with baseline conditions of the final effluent?*
- c) Explore the feasibility of a separate stormwater treatment system*
- d) Can solids from the primary clarifiers overflow in large storm events?*

*As another part of the Treatment Efficiency and Engineering Report, an analysis of past (from 1990 to present) upsets and bypasses should be made and should include the following:*

- e) What was the effect of the upset or bypass, in terms of effluent quality?*
- f) What precipitated the upset or bypass?*
- g) How could the upset or bypass have been avoided?*

*After the Treatment Efficiency and Engineering Report is completed, an analysis of process changes should be made—recycling and recovery from the waste stream, increased settling of solids (secondary clarification, if not already implemented), biologic digestion of solids, stormwater treatment options, and corrective measures for upsets/or bypasses. Other factors that should be addressed include energy savings, pollutant reduction, and costs for each. The report should be due May 2004.*

■ The Treatment System study includes sampling during both dry and wet weather conditions to evaluate the concerns described in *a)* and *b)*. Past bypasses/upsets were reported in detail to the department, as required by the existing permit. These reports included cause and prevention descriptions. The detailed suggestions regarding content of the engineering report are noted. The permit requires this report to be submitted by May 2004.

Testing protocol

[43] *Yearly Priority Pollutant scans are excessive. Once after bleach plant conversion, and again upon submittal of a permit renewal application—and then, only for compounds of concern—would be a more appropriate.*

■ In the past, Ecology required only one priority pollutant scan during the permit term. This infrequency created problems when trying to determine whether hits actually characterized the effluent. Ecology needs data with statistical validity in order to determine any need to regulate constituents of the discharge. That's why we decided to increase the number of priority pollutant tests. Yearly broadcast pollutant testing will be required within the permit.

[6] *On page 14 of 30, concerning Acute Toxicity, why does the permit require only three tests over the course of three months (80% survival in 65% effluent for 96 hours)?*

■ The 80% survival in 65% effluent during a 96 hour test is the technology based bioassay requirement that was rolled over from the existing permit and will only be in effect until the

effluent toxicity is re-characterized. Georgia-Pacific met this performance requirement regularly during the permit term. This new permit requires Georgia-Pacific to re-characterize the effluent for the Whole Effluent Toxicity (WET) requirements of Chapter 173-205 WAC. This will include chronic toxicity testing using the bivalve larvae test; bivalve larvae are very sensitive to sulfite pulp mill effluent. The resulting limits could very well be much more restrictive than the technology based limit. The commenter's dissatisfaction with the technology based bioassay requirement is noted.

[39] *There are certainly no rainbow trout in Bellingham Bay! Ecology should require acute and chronic toxicity testing on the salmon species that are likely to be found migrating through this effluent. These tests should be conducted quarterly, and should continue for at least 18 months after the facility has completed its transition to the new bleaching process.*

■ The commenter is correct; there are no rainbow trout (*Oncorhynchus mykiss*) in Bellingham bay. Protocols for resident species are not available; therefore, rainbow trout are used—nationwide—as a surrogate for salmonids. We have required this testing for many years now, and there were very few acute responses. Lacking an accepted chronic testing protocol for rainbow trout, Ecology decided to test several species (e.g. oyster larva, daphnids) and then require monitoring with the most sensitive species.

The Permit requires the salmonid testing until the whole effluent toxicity testing characterization study and other subsequent requirements take effect. The acute testing with salmonids and the whole effluent toxicity characterization will be in effect for at least 16 months after the bleach plant modifications have been completed, but since it appears the commenter's concern is about the Salmonid testing that procedure has been added to the characterization study.

*Why does the permit allow Georgia-Pacific to discontinue bioassays after May 31, 2001? Also, why is acute toxicity testing not conducted for bivalves, such as the Pacific Oyster? Since there have been toxicity problems for this species in the past, then continued chronic toxicity testing is appropriate.*

■ Bioassays are discontinued because they will be replaced by the more comprehensive Whole Effluent Toxicity test once the ECF conversion is complete. There are different species used for acute and chronic toxicity testing due to the nature of the test, time to complete the test, and sensitivity of the organism.

The comment is correct about Georgia-Pacific's effluent having shown toxicity to the oyster larvae in the past; and it will probably have similar problems during the characterization study. The oyster larvae (and mussel larvae) are included in the characterization and monitoring requirements in the proposed permit. (See: Permit page 18, subsection S3.A; and page 19.)

*We are concerned that Georgia-Pacific will not receive a permit limit for acute toxicity until mean survival falls below 80% or any one test species exhibits less than a 65% survival rate. Is Ecology willing to sacrifice up to 35% of salmon and other fin fish that swim through this facility's effluent? A limit should be put into place that is analogous to that of chronic toxicity: There should be no statistically significant difference in mortality between organisms exposed to effluent and control organisms.*

■ Georgia-Pacific will receive an acute effluent limit if the WET characterization study shows that "...the median survival in one hundred percent effluent is less than eighty percent, or if any individual test result shows less than sixty-five percent survival in one hundred percent effluent..." **WAC 173-205-050(2)(a)(i)**. This criteria for determining a need for a WET acute limit is more restrictive than the previous technology based "salmonid 80% survival in 65% effluent" limit. This limit does not mean that we are writing off 35% of the fish exposed to the mill effluent. This is how we determine whether there is a reasonable potential that effluent could create acute conditions in the receiving water. The final limit is set at the edge of the acute dilution zone.

[15] *The permit addresses the measurable or observable toxicity of the effluent on a number of indicator species. It does not, however, address the question of harmful effects unrelated to toxicity, i.e., simple physical suffocation and inhibition of healthy benthic life.*

■ Comment noted. The commenter is correct that the WET requirements are limited with regard to the type of toxic effect, the number of species, and the life stages tested. Currently, a limited number of accepted testing procedures are available; in the future, toxicity testing requirements may more fully address this concern. In selecting the species for performing the characterization study, we have tried to cover a sufficient number of species and life stages to obtain as thorough an evaluation of the toxic effects as possible. See below, at page 19, our response to [13-14].

[54] *A flow-through bioassay is better suited to test the results of changing production and product mixes at a pulp and paper mill than is the proposed "grab" sampling.*

■ Flow-through bioassays have been used successfully in other states. We do not use them in Washington because they are very complicated and subject to problems that limit their utility for compliance purposes. They are difficult to use with industries with large flows, like the pulp and paper industry. To make the bioassay system work it is necessary to slow the flow down and get a representative sample; they do not work at all with the species that have the greatest sensitivity to pulp mill effluents, i.e. bivalve larvae, echinoderm sperm. They have to be set up on site, near the final outfall; this is problematic for maintaining the complicated dilution apparatus that is required. Finally, they are difficult to administer from a laboratory accreditation standpoint.

[55] *To determine compliance and establish data for further study, the bioassay sampling should include indicators such as salmon eggs, bottom feeder species (including mussels and shellfish), and the predominant species upon which the Bay species feed. Include continuous monitoring for toxicity, and allow maintenance of long-lived captive fish and other species for periodic testing of dioxin, other isomers, and AOX accumulation in the subject tissues over the long term.*

■ Bioassay protocols for other resident species may be developed, but at this time, bioassays are restricted to those species with existing protocols. Georgia-Pacific is required to monitor for Whole Effluent Toxicity throughout the permit term, as required by state law. This will, in effect, monitor biological toxicity. Studies to determine bioaccumulation levels in resident populations have been used in the past at other locations and may be initiated again in the future. It is difficult to tie the concentration in resident fish tissues to a single discharge of concern. Other methods for directly measuring bioaccumulation effects are being evaluated.



[67] *Pursue reporting of dioxin and furan samples that are below minimum levels established in EPA Method 1613 outside DMR reports.*

■ The minimum level, as defined by the EPA is established by the lowest calibration standard. One can get good quantitative data below the lowest concentration standard. This is especially true for isotope dilution, since the quantification is based on a ratio between the target analyte and the isotopically labeled analog, which acts as an internal standard. In fact, isotope dilution quantification is independent of the final volume of extract, so one could reduce the extract volume below that specified in the method to get better detection levels. The proposed permit requires Georgia-Pacific to report values (quantitative results) for all samples with signals or responses meeting the qualitative identification criteria for the method—not just those values or results above the minimum level. We are confident that the industry can provide good data below the 10 pg/L minimum level.

The permit specifies the use of EPA Method 1613 to analyze for 2378-TCDD and 2378-TCDF. Since we are only interested in these 2 compounds, we could increase sensitivity by requiring the mill to modify 1613 to look solely for these 2 compounds. The modified method should include selected ion monitoring (SIM) for only those ions associated with the labeled and unlabeled isotopes of these 2 compounds. If it becomes apparent during the term of the permit that lower detection levels can be attained, Ecology may re-open the permit to require this modification.

Since the analytical turnaround for dioxin/furan analysis could be difficult to meet on a quarterly basis, the permit will be changed to require estimated sample results below minimum levels established by the EPA. Those estimates will be submitted to Ecology in quarterly reports. Additionally, details of the reporting requirements have been moved from Footnote c/ in section B.2 of the original draft, to a more prominent place (see: Permit page 22, at subsection A.)

### A.3. Enforcement provisions

[40] *I prefer to see compliance orders incorporated into the permit. Do not write separate orders.*

■ Comment noted. Compliance orders are critical regulatory tools because they can be more timely both in issuance and when terms need to be amended to meet changing situations. To amend an existing NPDES permit requires more time to include formal public procedure.

[94] *It should be more expensive for a company to exceed discharge limits and to take shortcuts, than it is for them to comply fully with the law. I believe that the assessment of maximum allowable fines is necessary.*

■ Enforcement is applied commensurate with the level and frequency of violation. Currently state law (Chapter 90.48 RCW) limits the amount of penalty fines to a maximum of \$10,000 per day for each violation.

[39] *If Georgia-Pacific violates their permit limit for acute toxicity, do they simply have to monitor four weeks in a row? Then—if they continue to exceed their limit—they must conduct yet more monitoring, in the form of Toxicity Identification / Reduction Evaluation reports. What, exactly, is the point of this exercise? It seems that hefty fines, rather than the threat of continued monitoring and TI /RE studies would be more in order.*

■ The WET regulation, **Chapter 173-205 WAC**, is directed at determining whether toxicity exists and, if so, then determining the cause and correcting it. If Georgia-Pacific follows the steps in the permit, in accordance with the regulation, then the mill's operations will be in compliance. The result of this process should be the elimination of the constituent that's causing the toxicity. This way, Georgia-Pacific will be putting money into identification and elimination of the toxicity rather than into payment of fines to the state.

[3] *Deny the permit. State that no permit will be considered until Georgia-Pacific defends the necessity of producing "high brightness pulp."*

■ Ecology's duty, under Washington laws, is to apply pollution control laws to the industrial, municipal, and agricultural enterprises that share the use of our natural environment. We have applied those laws, as they have evolved during the past 30 years, to regulated facilities—including Georgia-Pacific West—as fairly and consistently as possible. Until we issue a new permit—with more restrictive discharge limits—both federal and state laws require that Georgia-Pacific West comply with the terms and conditions of its existing permit. Technological advances and regulatory guidance changes, coupled with the facility's closure of its chlor-alkali plant, mean that these new permit limits will be measurably better for our environment.

When the EPA placed the facility in a singular category, federal analysts were privy to confidential information unavailable for our examination. We asked the EPA Region X office to verify Georgia-Pacific West's categorization; they confirmed it. Through terms of the new permit, Ecology is requiring the mill's operators to provide substantial information defending their assertion to the EPA that an Elemental Chlorine Free bleaching technology is the only reasonable way to make their product.

[16] *How do you know that the data Georgia-Pacific reports is accurate—especially in the ultra low-level ranges they are testing?*

■ Ecology addresses this concern through the laboratory accreditation requirements. All laboratories conducting analysis under the NPDES program are required to become accredited. The accreditation process includes an evaluation of the laboratory and the analysis of periodic blank samples for the parameters of concern. This requirement applies not only to contracted laboratories but also to laboratories operated by the facility.

#### A.4. Permit compliance history

[9] *Charge Georgia-Pacific whatever amount necessary to acquire the services of a qualified, non-governmental, independent monitoring agent.*

■ Georgia-Pacific Bellingham is currently in compliance with the applicable environmental laws of the state. Under the current regulatory framework, self-monitoring provides data that allows us to determine whether the facility is in regulatory compliance. Unannounced inspections by the department verify monitoring data integrity. See our response to comment [4], on page 8.

[10] We received five comments similar to this:

*Historically, Georgia-Pacific was permitted to dilute and deliver toxic debris into our air and water. Did you consider the historic evidence when evaluating their latest permit application?*

■ Regulatory compliance throughout the prior permit management period is always considered, and it influences the terms of future permit renewals. Georgia-Pacific is currently operating in compliance with the environmental regulations in effect at the time we issued their existing NPDES permit. Recent permit violations are discussed on page 6 of the Fact Sheet.

[11] *How many pounds of contaminated materials has Georgia-Pacific dumped over the past 40 years? If you became aware that it was dumped illegally, would that affect your decision regarding the chlorine dioxide bleaching process?*

■ The reference to “40 years of violations” was in several public hearing and written comments. This implies a long-standing pattern of operating in violation of state and federal environmental laws and rules. Provisions in the Clean Water and Clean Air acts would have resulted in a record of such offenses. We have found no such record.

Should any regulated facility’s past, current, or future activities be determined “illegal,” enforcement action will result. Past environmental compliance history could affect the conditions for permit renewal, but a specialty grade producer’s use of chlorine dioxide bleaching technology would not be affected. This designation decision by the department was reviewed by the EPA and found to be applicable to this mill.

[12] *List all of Georgia-Pacific’s water and air permit violations taken into account in your current permit review process.*

■ Ecology has taken all violations into account during development of the permit renewal. A complete compliance history is available in the permit Fact Sheet, on pages 5 and 6.

#### A.5. Additional permit-specific comments

[47] *Of the identified compounds listed under section B2, what fraction is total AOX? How does the concentration of compounds change through processing and treatment?*

■ The department has no monitoring information on the chlorinated phenolics, TCDD, TCDF, or chloroform within the mill. During the course of the permit, this information will be collected and the percentage of AOX that is made up of these compounds will become available.

[13 - 14] *The permit concerns itself solely with Georgia-Pacific's effluent discharged via the outfall diffuser, 8000 feet out into Bellingham Bay. It neglects to address the effects of the mill's operations on intertidal and subtidal life in the Whatcom Creek waterway and estuary. What will the permit do about the chronic scattering and dispersal of wood chips and wood dust from chip barges, unloading operations, and chip storage? This continuing load of decaying and oxygen-depleting material (more than the presence of historic mercury discharge, in my opinion) has prevented natural rehabilitation of the waterway and the entrance to the creek. Why no discussion or suggested remediation of the solids discharged into the waters that form the most critical habitat at the mouth of Whatcom Creek?*

■ The proposed permit has been modified to include a requirement that Georgia-Pacific submit and adhere to a chip management plan to minimize the spillage of chips into the waterway (see: Permit page 14, at H). Remediation determinations for the Whatcom Creek waterway are made by staff at Ecology’s Northwest Regional office; contact Lucy Peebles there at (425) 649-7272.

[26] *Please detail, in the permit, who within Ecology will be responsible for determining the percentage of specialty grades product made by Georgia-Pacific on a monthly basis, and the exact method used to determine said percentages. Will the person responsible for this task have necessary accounting skills, in order to responsibly engage in the annual auditing necessary to verify sales? What safeguards exist to ensure that numbers reported are accurate and are in the specified air-dried tons? How often will Ecology staff visit the site to actually inspect records and products? Monitoring should be done at least quarterly and on a surprise basis.*

■ Comment noted. The permit manager will likely review production and/or sales records. This task assignment is subject to change, both in person and in personnel assignment, as the department's needs warrant. Persons engaging in this activity will be able to interpret the necessary records and evidence at the facility. Inspections will be performed on an unannounced (i.e. surprise) basis, as they are now.

[42] *I suggest that the permit follow Cluster Rule wording: "In order to determine whether a sulfite mill belongs in the specialty grade segment, permitting authorities should consider the expected production mix over the full permit term." Measuring compliance on a 12 month rolling average would be too restrictive.*

■ Ecology is following the EPA direction given in a letter (see Appendix 1) on the tracking of production to meet categorical requirements.

[59] *A minimum of 6.0 pH should be required as part of the dioxin control strategy.*

■ Comment noted. Further verification of the effectiveness and applicability of this approach to controlling dioxin production is needed before Ecology can require its use.

## **Section B: NPDES Policy and Permitting Process**

**The goals of the NPDES permitting program** may seem straightforward, but they can be realized only in relation to diverse needs, perceptions, and values—environmental, social and economic—that we each attach to land use. The ways we choose to use land inevitably effects the quality of our water.

### **B.1. Economics and human health**

[66] *The Best Available Technology, as someone else pointed out, is determined by what is economically achievable. And how is that figured? I don't believe that BAT takes into account the health costs to the community; I'm not sure how economically we deal with the health costs of pollution in this community.*

■ You are correct; the economic analysis conducted under BAT does not evaluate human health effects. A summary of the approach taken by the EPA can be found in "Economic Impact and Regulatory Flexibility Analysis of the Proposed Effluent Guidelines and NESHAP for the Pulp, Paper, and Paperboard Industry", Document number EPAA-821-R-93-021, November, 1993. The "potential to exceed water quality criteria" standard embodied in state law includes an evaluation of effects on human health. You may want to review page 16 of the Fact Sheet.

### ***Industry economics***

[22] *Rather than base decisions on a single manufacturing attribute (the chemical bleaching technology) I ask that Ecology focus on diversity, product safety, price performance, and customer trends.*

■ Market fluctuations have been taken into account in developing the permit. During the term of the permit, Ecology will be examining production records and this may effect how the facility is permitted in the future. Product safety and price performance are outside the scope of the NPDES program.

[21] [81] [85] *Elemental Chlorine Free pulp, bleached with chlorine dioxide, continues to dominate the world's bleached chemical pulp market. By the end of 1999, ECF production approached 48.5 million tons, totaling more than 62% of the world market share. Over the same period, TCF remained steady at 6% of world bleached chemical pulp production. The use of ECF bleaching technology is expanding because of documented scientific data on its environmental advantages and superior pulp quality.*

■ Comment noted.

[86] *Bleaching pulp through an ECF process ensures that products meet precise [standards for] brightness, opacity, hygiene, strength, and other qualities preferred by customers and the public. The data shows that mills using ECF bleaching technology produce no measurable levels of 2378 TCDD dioxin. (Significantly, the scientific instruments used to evaluate mill discharges are capable of detecting pollutants at 10 parts per quadrillion. For illustration, this equates to 10 seconds in 32 million years.) NWPPA believes that the new stricter federal environmental standard for the pulp and paper industry—called the cluster rule, which promotes the use of elemental chlorine free bleaching technology—is the right solution.*

■ Comment noted.

[96] *During the formal comment period, we received 14 comments asking that Ecology choose the environment and human health over Georgia-Pacific West's economic concerns.*

■ Comments noted. See our response to comments about TCF, on page 2. We believe this permit protects public health and appropriately considers Georgia-Pacific's economic concerns.

[97] [106] *I expected that the applicable standards related to Best Available Technology; and I'm wondering what economic achievability has to do with Ecology setting standards for our environmental health? Economics doesn't belong in the definition of an environmental standard. The Georgia-Pacific facility is located in a densely populated area and the risk to our health is too high a price to pay for economic gain.*

■ When the EPA established the technology based BAT limits, they considered both protection of water quality and reasonable costs. The water quality standards established by Ecology, however, do not take the cost of treatment into account. For setting permit limits, we consider both sets of standards and require the facility to comply with the more stringent of the two.

[82 - 84] *My comments represent the views held by many men and women working at Georgia - Pacific who count on these same jobs for their income and livelihood in this community. We ask that Ecology support the EPA's effort to balance industry needs with good science and best business practices, under the Cluster Rule. Requiring that we use totally chlorine free bleaching technology would significantly limit our ability to change with customer demand, and would preclude us from supplying the more lucrative markets of photo-grade paper and plastic filler.*

*The bathroom tissue/paper towel market is far too cyclical; we cannot afford to be boxed in and totally dependent on this market.*

■ Comment noted.

## B.2. Deny the permit

[68] [71] *I write to encourage you to either (i) require Georgia-Pacific in Bellingham, Washington to create and operate a pollution free mill or(ii) shut them down entirely.*

■ The mill is operated within the environmental rules and regulations as they now exist in Washington State. “Pollution Free” is a broad scope term, an ideal end-point goal for our society’s environmental behavior; but living or working pollution free is a physical impossibility. The mill is in compliance with the state and federal environmental rules and regulations and, therefore, the department has no authority to close the mill based on its environmental operation. Until Ecology issues the new permit, Georgia-Pacific is required by law to operate under its existing permit—with discharge limits that are too generous by today’s technology standards.

[69 - 70] *I earnestly request your department to postpone finalizing the permit until the EPA can reevaluate the local conditions. Allow a more thorough representation of the community's opinions— those who are most strongly affected by the emissions of the plant.*

■ The EPA has delegated NPDES permitting authority to Ecology; to exercise that authority, we must administer the program as it was designed. Postponing the permit will only allow existing discharge limits to remain the same. If, in the future, the EPA recommends changes based on local conditions, Ecology can reopen the permit. Meanwhile, this new permit will measurably reduce pollution levels.

[72] [78] *In light of Georgia-Pacific’s history of pollution; in light of the permit’s requirement for self- monitoring; in light of an apparent lack of a concrete penalty for permit violations— please deny the permit as written and require that Georgia-Pacific operate in a totally chlorine free manner.*

■ The facility is in compliance with applicable regulations. Self-monitoring is verified by the department, per our response to [4] on page 8, above; all violations are reviewed by Ecology and commensurate enforcement action is taken. The EPA reviewed the draft permit and concurred with both the mill’s plan to use ECF bleaching technology and the permit’s related requirements.

[73 - 74] [77] *If Ecology allows this permit to go through, mill operations will have an adverse—even deadly—affect on this community. We, Whatcom County, do not want to put anything at all—zero discharge—into our water. It’s not just Bellingham, the Puget Sound is changing and we don’t want anything discharged into the water.*

■ Comment noted. Ecology has no information to indicate public health is threatened by issuing the permit. The new permit will reduce pollution from some of the sources within the mill. Both state and federal environmental laws currently allow discharges to the surface waters of our state. Those laws do not authorize us to unilaterally decide which companies may locate and operate their facilities here.

[79] *The Department of Ecology has a unique opportunity to say “no” to this permit and to force Georgia-Pacific to do things in a healthier, cleaner way. The 70,000 citizens of this town—those who don’t work for G-P—will see a stop to the polluting.*

■ Georgia-Pacific is currently in compliance with both the state and federal laws and regulations in place at the time the existing permit was issued. The department has been delegated responsibility for implementing the federal NPDES program; we have no alternative but to issue a discharge permit that will continue to maintain that compliance status. The proposed permit will reduce some discharge limits; Georgia-Pacific’s bleaching technology change will reduce some sources of pollution. See page 8 in the Fact Sheet for a comparison.

### B.3. Issue the permit

[80] *Please grant all required permits to allow Georgia-Pacific’s Bellingham Division to continue its bleach plant conversion to completion and use of its designed Element Chlorine Free (ECF) bleaching system and related discharge systems.*

■ Comment noted. The department reviews all applicable regulations and applies them to the permits Ecology is authorized to issue.

[81-83] *I encourage you to grant the NPDES permit. Georgia-Pacific is a good neighbor and environmentally conscious; they do work for a good production record and a safe community. More environmental friendly ways should constantly be sought, but this can be done under the permit the mill has asked Ecology to issue. I believe certain individuals, such as downtown commercial property owners, are masking their pursuit of personal gain behind environmental concerns that are not true.*

■ Comment noted.

[100] *I am also aware of the environmentalists who seek to close the mill down until Georgia-Pacific conforms to their standards. These standards, I feel, have been arrived at by people who have been studying plant operations for eight months—Eight months, weighing against the many years G.P. engineers have spent structuring the most efficient and clean way possible to run their paper mill. Please issue the permit.*

■ Comment noted.

### B.4. Possible conflict of laws or standards

#### **BAT and AKART--**

[91] *It appears that Ecology is following/ hiding behind the liberal discharge standards that the EPA has set up, calling these AKART (somehow BAT no longer applies- WHY?).*

■ The department used the EPA effluent guidelines for the pulp and paper industry to set the limits for this permit. EPA effluent guidelines are BAT. It is the department’s policy that BAT is equivalent to AKART if the effluent guidelines are less than ten years old. The EPA published effluent guidelines for the pulp and paper industry less than three years ago.

[93] *Ecology should conduct its own AKART analysis.*

■ Ecology has accepted the EPA’s extensive research and analysis in developing BAT, and equates BAT to AKART. Any attempt at duplication of this effort may be less than prudent use

of public funds, with questionable improvement in regulatory results. See our response to comments about TCF, on page 2, below.

***Mission and mandate--***

[70] *We contend that the fact that Ecology even issues permits to pollute is totally at odds with the mandate of a department charged with, and is supposed to be responsible for, protecting our environment.*

■ Comment noted. The department's mandate includes promoting the wise use of our resources. Also see our response to comments [97] and [68] on page 21, and comment [69] on pages 21-22.

***Discharge and antidegradation--***

[7] *On the Fact sheet, under the antidegradation subtitle: "The Dept. has reviewed existing records and is unable to determine whether ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Dept. will use the designated classification criteria for this water body in the proposed permit." Question: What is the designated criteria? Question: If the receiving water is already substandard because of past pollution, shouldn't the company be held to the standard of similar mills with higher ratings (i.e., Oregon's mills)? It is crucial that Georgia-Pacific West be held to the topmost standard because of its proximity to our downtown.*

■ On page 14, the Fact Sheet states that Bellingham Bay is a Class A waterbody. The applicable criteria for a Class A waterbody include such parameters as pH, turbidity, temperature and dissolved oxygen. The specific criteria are shown on page 14 of the fact sheet or can be found in 173-201A-140 WAC. The bay has not been determined to be a "substandard" waterbody. The Georgia-Pacific mill is regulated to the full extent the law allows.

[87] *During the formal comment period, we received five comments expressing the similar concern that Ecology prevent Georgia-Pacific from degrading Bellingham Bay's water quality.*

■ Washington's current antidegradation policy, stated in WAC 173-201A-070, has two general components. One is that existing beneficial uses will be maintained and protected. The other prohibits discharges that would reduce existing water quality—except under circumstances stated in the rule. The Department of Ecology is currently undertaking a revision of the rule addressing implementation of the antidegradation policy. We believe this permit complies with the existing antidegradation policy. (See: Permit page 27 at subsection G1.)

[65] *I understand that Georgia-Pacific contemplates that 25 percent of its production output will be alpha cellulose specialty pulp grade, and that Ecology staff will be monitoring sales. I'm very concerned that some of these "sales" qualifying the mill for placement in the specialty pulp category could be merely transfers between divisions of Georgia-Pacific, or shipments to wholly-owned subsidiaries of Georgia-Pacific. I'll be very concerned if—when the record keeping is through—the rolling 12<sup>th</sup> month average shows that 25% of what G-P produced and sold was specialty grade pulp, straight as a stick. That would suggest to me that it's all internal juggling, rather than actual production percentages and external customer sales, on the books.*

■ Federal regulations define the specialty segment. "The specialty grade sulfite pulp segment consists of those paper grade sulfite mills where a significant portion of production is characterized by pulp with a high percentage of alpha cellulose and high brightness sufficient to



produce end products such as plastic molding compounds, saturating and laminating products, and photographic papers.” Ecology has taken a step further, by committing to review sales documents to confirm production toward end uses (rather than stock piling).

[88] We received two formal comments of this nature:

*In the past, G.P. effluent was demonstrated to have "a reasonable potential to cause receiving water toxicity." (Fact Sheet- page 16). How do you reconcile this with Washington's Antidegradation Policy?*

■ Ecology analyzes all pollutants in the effluent to determine which pollutants require effluent limits. We use a process developed by the EPA which examines each pollutant in extreme circumstances—the highest possible effluent pollutant concentration, the highest effluent flow, and the least dilution in the receiving water. Those pollutants that demonstrate a potential to violate the water quality standards in extreme circumstances are assigned effluent limits. These limits, if complied with, will assure that water quality standards will be met and will, therefore, comply with the antidegradation policy. The Whole Effluent Toxicity rule (Chapter 173-205 WAC) requires that the toxicity be eliminated; it's done through the Toxicity Identification /Reduction Evaluation process. This process does not involve limits—the mill must identify the toxic agent and eliminate it. This requirement is consistent with our antidegradation policy.

[89] *Georgia-Pacific West is violating Washington's Anti-degradation Policy (WAC 173-201A-070). Ambient water quality in the bay is currently degraded by 1 million cubic tons of sediment laden with mercury. Any stirring or strong current could resuspend the contaminated sediment in the surface water.*

■ In the course of developing this permit Ecology evaluated the potential for the mill's effluent to violate sediment quality standards, and the quality of existing sediment at the outfall. Based upon this work, the proposed permit complies with our antidegradation policy; and sediments at the outfall comply with the cleanup standards established by the Sediment Management Standards (Chapter 173-204 WAC). Under the proposed permit, sediments at the outfall will be monitored to ensure that source controls continue to be effective in protecting biological resources.

Sediments in other areas of Bellingham Bay have been contaminated by historic discharges from Georgia-Pacific; they do require cleanup action, and are being addressed by both Ecology and Georgia-Pacific under Chapter 173-340 WAC of Washington's cleanup regulations. For information about Ecology's sediment cleanup activities in Bellingham Bay, please contact Lucy Pebles at our Northwest Regional Office by phoning (425) 649-7272, or by e-mailing her at [lpeb461@ecy.wa.gov](mailto:lpeb461@ecy.wa.gov).

[90] *Ecology should show the analysis by which it has determined that the effluent from Georgia Pacific would lead to no degradation in the Bay. Please address the following:*

- a) Past effluent was demonstrated to have "a reasonable potential to cause receiving water toxicity." (Fact Sheet - page 16)*
- b) Characterization and chronic toxicity has not been performed on the "new effluent," obtained after process changes.*
- c) Has a determination been made to identify the elements responsible for chronic toxicity, and at what level will these elements be found in the new effluent?*

■ During preparation of the permit, we found a reasonable potential to cause receiving water toxicity in two areas: First, was the original characterization study for chronic toxicity. Since Georgia-Pacific is changing its bleaching technology—which could potentially change the effluent toxicity—the permit requires effluent re-characterization shortly after the permit is issued. If the re-characterization still shows a reasonable potential for chronic toxicity, then the permit assigns a limit that takes effect immediately after the re-characterization results are confirmed. Monitoring requirements for the chronic limit are also included in the permit, if the chronic limit is required. Second, if the chronic limit is triggered and the required monitoring indicates that Georgia-Pacific is in violation of the limit, increased monitoring will be required. If the toxicity persists, then Georgia-Pacific has to conduct a Toxicity Identification /Reduction Evaluation study to identify what is causing the toxicity and define what will be done to reduce the toxicity.

***Ecology's PBT Strategy***

[37] [92] Four people commented similar to this:

*Dilution is not a solution, when dealing with Persistent Bioaccumulative Toxins. We oppose the granting of dilution zones for toxic and bioaccumulative pollutants.*

■ Comment noted. Currently, mixing zones are allowed for persistent bioaccumulative toxins.

[102] *How is the issuance of this permit—which locks Georgia-Pacific into a chlorine dioxide bleaching process—consistent with your agency strategy to eliminate the discharge of bioaccumulative toxics within the next 20 years?*

■ The ECF bleaching technology will result in a significant reduction of PBTs and is therefore consistent with the proposed PBT Strategy as it exists today. As the Strategy is further refined, we may need to reopen the permit.

[103] *Washington's anti-degradation policy requires that discharges into a receiving water not further degrade the existing water quality of that water body—yet this permit allows Georgia-Pacific to put persistent bioaccumulative toxics into the bay. Isn't the permit violating WAC 173-201A-070?*

■ Ecology analyzes all pollutants in the effluent to determine which ones need limits. We examine the effluent's potential for violating sediment- or water- quality standards. And we evaluate the effluent's reasonable potential to cause receiving water toxicity. We use every regulatory tool, and apply every environmental standard available to us under state and federal law. According to the standards and requirements established in law, Georgia-Pacific is discharging lawfully.

[104] *When we're talking about carcinogens and dioxins, I really don't think we have a choice as to what levels we should allow. I don't see it as a choice.*

■ The permit restricts and reduces pollutants to the full extent the law allows.

[105] *Setting permit limits that are based upon Georgia-Pacific's predicted output of specialty pulp allows the discharge of bioaccumulative toxins regardless of whether the facility meets the 25 percent high-brightness pulp production threshold.*

■ The permit places federally mandated restrictions on the facility. If Georgia-Pacific should fail to meet the 25% of production minimum, more restrictive discharge limits take effect. At this time, the NPDES permit program does not regulate production technology—only effluent limitations. Should violations occur, appropriate enforcement actions will commence.

#### B.5. Comments about the permitting process

[101] *We received comments from several individuals requesting another public hearing.*

■ Ecology extended the comment period an extra month, made all relevant information available during this time, and Ecology personnel were available and actively engaged in responding to specific questions during the extension. An additional public hearing would duplicate public costs but—given the involvement by Ecology with all stakeholders during the permit drafting process—would not reasonably be expected to confer a public benefit.

[98] *You and your staff were faced with both reasonable and unreasonable opposition to the proposed permit and I feel you did a commendable job of facilitating and airing of these views.*

■ Comment noted.

[99] *The conduct of some at the hearing prevented data from being presented; the agenda timelines should have been followed.*

■ Comment noted.

### **Section C: Broader Pollution Concerns**

**Despite the successes** of the NPDES permitting program, we have yet to remedy the cumulative pollution of air, land and water that is the legacy of the past—not only from industry or businesses practices, but from individual habits or community tradition—from many diverse sources and activities.

[27] *Sediment sampling results from 1999/2000 should be made available to the public. Sediment sampling from Bellingham Bay should be conducted by a contractor chosen by Ecology, citizens, and Georgia-Pacific. A public forum that includes Ecology staff, citizen representatives, and Georgia-Pacific employees should convene to discuss the results.*

■ Final sediment data submitted to the department, as required, is available through the public disclosure process. Sediment sampling is performed according to methods approved by the department (Chapter 173-340 WAC). In other areas of the bay, sediment sampling has been done to characterize the nature and extent of contamination as part of a regulatory cleanup effort under authority of the Model Toxics Control Act (Chapter 70.105D RCW).

In 1996, Georgia-Pacific and Ecology entered into a legal agreement under MTCA to define the Whatcom Waterway cleanup site and evaluate the feasibility of a range of cleanup alternatives. The result of this effort was documented in the Draft Final Whatcom Waterway Remedial Investigation/Feasibility Study (RI/FS) issued in July 1999 for a 60-day public comment period. A public meeting was also held during that public comment period. After addressing comments received, the final RI/FS was issued in July 2000. That document is available for public review at Ecology's Bellingham Field Office, at the Bellingham Public Library, and at Ecology's Northwest Regional Office in Bellevue. For more information about Ecology's sediment cleanup activities in Bellingham Bay, please contact Lucy Pebles at our Northwest Regional Office, by telephone (425) 649-7272 or by e-mail at [lpeb461@ecy.wa.gov](mailto:lpeb461@ecy.wa.gov).